AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (original) A hydrogen storage composition comprising:

$M'_xM''_yN_zH_d$

wherein

(a) M' is a cation selected from the group consisting of: Li, Ca, Na, Mg, K, Be, and mixtures thereof and x is greater than about 50 and less than about 53;

(b) M'' comprises a cation composition comprising a Group 13 element of the Periodic Table and y is greater than about 5 and less than about 34;

(c) N is nitrogen and z is greater than about 16 and less than about 45;

(d) H is hydrogen and in a fully hydrogenated state, d is greater than about 110 and less than about 177; and

(d) wherein M', M'', x, y, z, and d are selected so as to maintain electroneutrality.

2. (original) The hydrogen storage composition according to claim 1 wherein hydrogen is released from the storage composition in a fully hydrogenated state to form a composition represented by the general formula $M'_xM''_yN_z$, where x is greater than about 50 and less than about 53; y is greater than about 5 and less than about 34; and z is greater than about 16 and less than about 45.

3. (original) The hydrogen storage composition according to claim 1 wherein the storage composition is formed by reacting a hydride represented by the general formula $MI_a(MIIH_b)_c$ with a nitride represented by the general formula $MIII^f(NH_e)_g^{-c}$; and wherein a, b, c, e, f, and g are selected so as to maintain electroneutrality.

4. (original) The hydrogen storage composition according to claim 3 wherein the storage composition is formed by a reaction between said hydride and said nitride, as represented by the reaction formula:

$A\,MI^a(MIIH_b)_a + B\,MIII^f(NH_e)_g^{-c} \rightarrow M'_x M''_y N_z H_d$ wherein M' comprises MI and MIII and M'' comprises MII, wherein x is equal to (A+B), y is equal to a, z is equal to (B x g), and d is equal to ((A x a x b)+ (B x e x g)).

5. (original) The hydrogen storage composition according to claim 4 wherein *A* is about 1 and *B* is from between about 0.5 to about 3.

6. (original) The hydrogen storage composition according to claim 4 wherein *A* is about 1 and *B* is from between about 2 to about 2.25.

7. (original) The hydrogen storage composition according to claim 4 wherein said nitride is lithium amide represented by the formula $LiNH_2$ and said hydride is lithium borohydride represented by the formula $LiBH_4$.

8. (original) The hydrogen storage composition according to claim 4 wherein said nitride is lithium amide represented by the formula $LiNH_2$, said hydride is lithium aluminum hydride represented by the formula $LiAlH_4$.

9. (original) The hydrogen storage composition according to claim 4 wherein the composition releases hydrogen by the following reaction:

$M'_x M''_y N_z H_d \rightarrow MI_A MII_{(Axa)} MIII_B N_{(Bxg)} + D\,H_2$ wherein M' comprises MI and MIII; M'' comprises MII; $D = \left(\frac{d}{2}\right)$, and a, x, y, z, d, A and B are selected so as to maintain electroneutrality.

10. (original) The hydrogen storage composition according to claim 1 wherein the hydrogen storage composition comprises a single phase.

11. (original) The hydrogen storage composition according to claim 1 wherein the hydrogen storage composition is a compound.

12. (original) The hydrogen storage composition according to claim 1 wherein the composition is expressed by the nominal general $Li_qB_rN_sH_t$ wherein the atomic ratio of q/r is about 3; s/r is about 2; and t/r is about 8.

13. (original) The hydrogen storage composition according to claim 12 wherein the composition comprises $Li_3BN_2H_8$.

14. (currently amended) A method of storing hydrogen comprising: reacting a nitride having one or more cations other than hydrogen with a hydride ~~having one or more cations other than hydrogen~~ represented by $MI^{a}(MIIH_{b})_{a}$, wherein MI represents a first cationic species other than hydrogen, MII represents a second cationic species other than hydrogen which is distinct from said first cationic species, wherein a and b are selected so as to maintain electroneutrality and $\left(\frac{b x a}{1+a}\right)$ represents a ratio of hydrogen to cationic species present in the hydride,

wherein said reacting forms a hydrogen storage composition comprising hydrogen, nitrogen, and at least one cation selected from ~~of~~ said one or more cations other than hydrogen derived from said nitride and at least one cation selected from MI and MII derived from said hydride~~, respectively~~.

15. (currently amended) The method according to claim 14 wherein said hydrogen storage composition releases hydrogen by reacting to form a hydrogen product and one or more byproduct compositions comprising: nitrogen and at least one of said one or more cations other than hydrogen derived from said nitride and MI and MII derived from said hydride, respectively.

16. (cancelled).

17. (previously presented) The method according to Claim 14 wherein MI comprises a cation selected from the group consisting of: Li, Ca, Na, Mg, K, Be and

mixtures thereof; and MII comprises a cation comprising a Group 13 element of the Periodic Table.

18. (previously presented) The method according to Claim 14 wherein said nitride is represented by $MIII^{f}(NH_e)_g^{-c}$, wherein MIII represents at least one cationic species other than hydrogen, f represents an average valence state of MIII, $c = (3 - e)$, $g = \frac{f}{c}$ and (e x g) represents an atomic ratio of hydrogen to cationic species present in said nitride.

19. (original) The method according to Claims 18 wherein MIII comprises a cation selected from the group consisting of: Li, Ca, Na, Mg, K, Be, and mixtures thereof.

20. (previously presented) The method according to Claim 14 wherein said hydride is selected from the group of compounds consisting of: lithium aluminum hydride ($LiAlH_4$), sodium borohydride ($NaBH_4$), lithium borohydride ($LiBH_4$), magnesium borohydride $Mg(BH_4)_2$, sodium aluminum hydride ($NaAlH_4$), and mixtures thereof.

21. (original) The method according to Claim 14 wherein said nitride is selected from the group of compounds consisting of: lithium amide ($LiNH_2$), sodium amide ($NaNH_2$), magnesium amide ($Mg(NH_2)_2$), Li_3N (lithium nitride), magnesium imide (MgNH), borozane (BNH_6), lithium azide (LiN_3), and mixtures thereof.

22. (original) The method according to Claim 14 wherein said nitride is lithium amide represented by the formula $LiNH_2$ and said hydride is lithium borohydride represented by the formula $LiBH_4$.

23. (original) The method according to Claim 14 wherein said nitride is lithium amide represented by the formula $LiNH_2$, said hydride is lithium aluminum hydride represented by the formula $LiAlH_4$.

24. (original) The method according to Claim 14 wherein said reacting is conducted in an inert atmosphere.

25. (original) The method according to Claim 14 wherein prior to said reacting, reducing said nitride to an average particle diameter size of less than about 3 μm.

26. (original) The method according to Claim 14 wherein prior to said reacting, reducing said hydride to an average particle diameter size of less than about 25 μm.

27. (original) The method according to Claim 14 wherein said reacting is conducted at a temperature of about 85°C or greater.

28. (original) The method according to Claim 14 wherein said reacting is conducted in a milling process, wherein said nitride and said hydride are milled to reduce particle size and provide energy sufficient for said reacting of said nitride with said hydride.

29. (currently amended) A method of releasing hydrogen comprising: reacting a hydrogen storage nitride composition having one or more cations other than hydrogen with a hydrogen storage hydride composition ~~having one or more cations other than hydrogen~~ represented by $MI^{a}(MIIH_{b})_{a}$, wherein MI represents a first cationic species other than hydrogen, MII represents a second cationic species other than hydrogen which is distinct from said first cationic species, wherein a and b are selected so as to maintain electroneutrality and $\left(\frac{bxa}{1+a}\right)$ represents an atomic ratio of hydrogen present to cationic species in said hydride composition, wherein said reacting releases hydrogen and forms one or more byproduct compounds comprising: nitrogen and at least one cation selected from ~~of~~ said one or more cations other than hydrogen derived from said nitride composition and at least one cation selected from MI and MII derived from said hydride composition~~, respectively~~.

30. (cancelled).

31. (previously presented) The method according to Claim 29 wherein said nitride composition is represented by $MIII^{f}(NH_{e})_{g}^{-c}$, wherein MIII represents at least

one cationic species other than hydrogen, f represents an average valence state of MIII, $c = (3 - e)$, $g = \frac{f}{c}$ and (e x g) represents an atomic ratio of hydrogen to cationic species present in said nitride composition.

32. (previously presented) The method according to Claim 31 wherein said MI, MII, and MIII are each cations independently selected from the group consisting of: CH_3, Al, As, B, Ba, Be, Ca, Cd, Ce, Cs, Cu, Eu, Fe, Ga, Gd, Ge, Hf, Hg, In, K, La, Li, Mg, Mn, Na, Nd, Ni, Pb, Pr, Rb, Sb, Sc, Se, Si, Sm, Sn, Sr, Th, Ti, Tl, W, Y, Yb, Zn, Zr, and mixtures thereof.

33. (previously presented) The method according to Claim 29 or 31 wherein MI or MIII comprises an element selected from the group consisting of: Al, B, Li, Na, K, Be, Mg, Ca, Sr, and mixtures thereof.

34. (previously presented) The method according to Claim 29 wherein MI is selected from the group consisting of: Al, B, Ca, Li, Mg, Na and mixtures thereof.

35. (previously presented) The method according to Claim 29 wherein MII comprises an element independently selected from the group consisting of: Al, B, Ca, Li, Na, Mg and mixtures thereof.

36. (previously presented) The method according to Claim 29 wherein said hydride composition is selected from the group of compositions consisting of:

lithium aluminum hydride ($LiAlH_4$), sodium borohydride ($NaBH_4$), lithium borohydride ($LiBH_4$), magnesium borohydride $Mg(BH_4)_2$, sodium aluminum hydride ($NaAlH_4$), and mixtures thereof.

37. (original) The method according to Claim 29 wherein said nitride composition is selected from the group of compositions consisting of: lithium amide ($LiNH_2$), sodium amide ($NaNH_2$), magnesium amide ($Mg(NH_2)_2$), Li_3N (lithium nitride), magnesium imide (MgNH), borozane (BNH_6), lithium azide (LiN_3), and mixtures thereof.

38. (original) The method according to Claim 29 wherein said nitride composition is lithium amide ($LiNH_2$) and said hydride composition is lithium borohydride ($LiBH_4$).

39. (original) The method according to Claim 29 wherein said nitride composition is lithium amide ($LiNH_2$) and said hydride composition is lithium aluminum hydride ($LiAlH_4$).

40. (original) The method according to Claim 29 wherein said reacting is represented by the general formula

$$A\,\mathrm{MI}^{a}(\mathrm{MIIH_b})_a + B\,\mathrm{MIII}^{f}(\mathrm{NH_e})_g^{-c} \longrightarrow \mathrm{MI}_A\mathrm{MII}_{(A\times a)}\mathrm{MIII}_B\mathrm{N}_{(B\times g)} + D\,\mathrm{H}_2\text{, where}$$

$c = (3-e)$, $D = \dfrac{(A\times a\times b)+(B\times e\times g)}{2}$, and $g = \dfrac{f}{c}$, and a, b, c, e, f, g, A and B, are selected so as to maintain electroneutrality.

41. (original) The method according to Claim 40 wherein said MI, MII, or MIII is selected from the group consisting of: CH_3, Al, As, B, Ba, Be, Ca, Cd, Ce, Cs, Cu, Eu, Fe, Ga, Gd, Ge, Hf, Hg, In, K, La, Li, Mg, Mn, Na, Nd, Ni, Pb, Pr, Rb, Sb, Sc, Se, Si, Sm, Sn, Sr, Th, Ti, Tl, W, Y, Yb, Zn, Zr, and mixtures thereof.

42. (original) The method according to Claim 40, wherein said reacting is represented by the general formula

$$A\,MI^{a}(MIIH_b)_a + B\,MI^{f}(NH_e)_g^{-c} + E\,MIIIIH_h \longrightarrow MI_AMII_{(A\times a)}MIII_BMIIII_EN_{(B\times g)} + D\,H_2$$

wherein a third composition $MIIIIH_h$ is present as a reactant and

$c = (3-e)$, $D = \dfrac{(A\times a\times b)+(B\times e\times g)+(E\times h)}{2}$, and $g = \dfrac{f}{c}$ and a, b, c, e, f, g, h, A, B, and E are selected so as to maintain electroneutrality.

43. (original) The method according to Claim 42 wherein MIIII of said third composition represents a cationic species other than hydrogen and h represents an atomic ratio of hydrogen in said third composition, wherein h is from 0 to about 2.

44. (original) The method of Claim 42 wherein said third composition is selected from the group consisting of: MgH_2, Mg, and mixtures thereof.

45. (original) The method according to Claim 29 wherein said reacting is conducted in an inert atmosphere.

46. (original) The method according to Claim 29 wherein prior to said reacting, reducing said nitride composition to an average particle diameter size of less than about 3 μm.

47. (original) The method according to Claim 29 wherein prior to said reacting, reducing said hydride composition to an average particle diameter size of less than about 25 μm.

48. (original) The method according to Claim 29 wherein prior to said reacting, reducing said nitride composition and said hydride composition to an average particle diameter size of less than about 15 μm.

49. (original) The method according to Claim 29 wherein said reacting is conducted at a temperature of at least about 85°C.

50. (original) The method according to Claim 29 wherein said reacting is conducted in a milling process, wherein said nitride composition and said hydride composition are milled to reduce particle size and generate energy sufficient to facilitate said reacting of said nitride composition with said hydride composition.

51. (original) The method according to Claim 29 wherein said reacting to release hydrogen is conducted at about 170°C or greater.

52. (original) The method according to Claim 29 wherein said reacting to release hydrogen is conducted at about 210°C or greater.